Linear Time vs Biological Time

Linear time (also called chronological time, physical time, or clock time) refers to the uniform, irreversible, one-directional flow of time as we typically measure and experience it in physics and everyday life. It is straight-line progression — past to present to future, measured objectively with clocks, calendars, seconds, hours, years. It is irreversible (you cannot go back to yesterday), universal and the same for everyone in classical physics and daily experience, closely tied to the arrow of time in physics, driven by increasing entropy (the Second Law of Thermodynamics), the expansion of the universe, and causality (causes precede effects). This is the time of historical events, aging in years, deadlines, and the sentence time marches on.

Biological time, in contrast, refers to how time is experienced and structured within living organisms. It is not a single uniform flow but a collection of internal rhythms, cycles, and processes that sustain life. It is cyclical/rhythmic rather than purely linear, features multiple overlapping biological clocks and oscillators, is subjective and variable (it can feel faster or slower depending on physiological state), and is essential for survival but not always aligned with clock time.

Main examples include circadian rhythm (approximately 24-hour internal day-night cycle for sleep/wake, hormone release, body temperature), heartbeat and respiration (regular oscillations such as 60–100 beats per minute, 12–20 breaths per minute), ultradian rhythms (shorter cycles such as 90-minute sleep stages or 90–120 minute alertness dips), menstrual/reproductive cycles (approximately 28-day hormonal cycle in humans), developmental/aging time (embryonic development, growth spurts, puberty, menopause, senescence — more directional and linear-like progression), and metabolic/cellular cycles (cell division, biochemical oscillations, seasonal breeding in animals).
Key differences and tensions: Linear time is external and mechanical — it's the time of physics, schedules, and society. It keeps marching forward uniformly regardless of biology.

Biological time is internal, multi-layered, and homeodynamic — living systems maintain themselves through repeating patterns (cycles) while still progressing irreversibly overall (birth to maturity to reproduction to aging to death). Many researchers describe a fundamental tension: life depends heavily on cyclical processes (repetition allows stability, repair, and renewal), yet life as a whole has an irreversible direction (no organism returns to embryonic state; death is final). This creates a hybrid: mostly cyclical rhythms embedded within an overall linear trajectory from birth to death.

In philosophy and some biology discussions, this leads to the idea that living beings live in cyclical-biological time far more than pure linear-clock time, while modern industrial societies force us to prioritize linear time (deadlines, productivity, aging measured in years), often creating stress or disconnection from natural bodily rhythms.

In short: Linear time equals the river that flows one way, the same for rocks, stars, and clocks. Biological time equals the rhythms and pulses of the living things floating (and swimming) in that river.